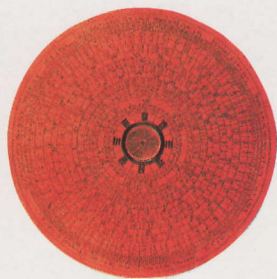


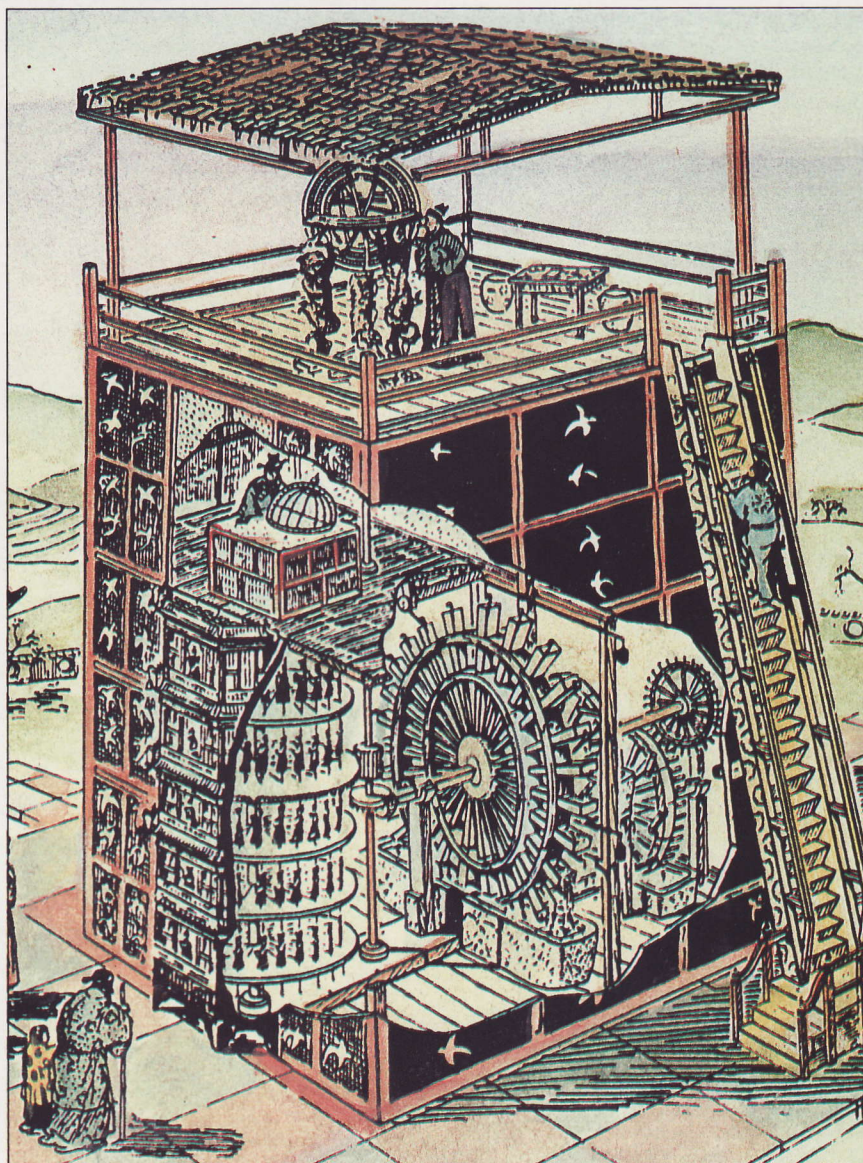
# Wheelbarrows, Fireworks, and Water Clocks

The next time you write on paper, use a compass on a hike, watch a fireworks display, carry a heavy load in a wheelbarrow, or play cards, thank the Chinese. The Chinese were the first to invent all of these items, and many more.

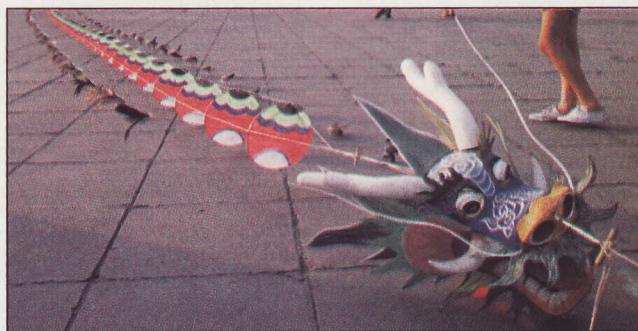


▲ **TODAY WE CALL IT** a compass, but the ancient Chinese knew this invention as a "south-pointing fish." The Chinese were the first to discover that a magnetic object could indicate direction. The "south-pointing fish" consisted of a wooden fish with a piece of metal floating in a bowl of water. It was used for overland and ocean voyages.

► **IN 1090 A CIVIL** servant named Su Song presented the first water clock to an emperor of the Song dynasty. It took Su Song four years to construct the 30-foot-high clock. Built in the shape of a tower, the clock's movements were driven by water flowing into buckets on a waterwheel inside the clock tower. As each bucket filled, a lever tilted, the wheel turned, and a new bucket was filled. The clock had bells and gongs that rang every 15 minutes. Revolving figures appeared at the



clock windows to chime the hours. Although Su Song's clock did not survive, he left such detailed plans of it that exact copies have been made from his original drawings.



◀ **CHINESE DOCTORS** may have accidentally discovered how to make gunpowder while searching for ways to cure illnesses. Made from potassium nitrate, sulfur, and charcoal, gunpowder explodes when lit.

In the 1100s, the Chinese began making fireworks from gunpowder by stuffing the powder into hollow sticks of bamboo and lighting them. Fireworks were believed to scare away evil spirits and ghosts.

▲ **THE CHINESE** have flown kites for at least 2,500 years. They were probably the first people to make kites, constructing them of silk and bamboo. After the invention of paper,

it became the favored material. Soldiers of the Han dynasty sailed kites to frighten their enemies. In ancient times, kites were a popular way to celebrate festivals.